



Docket No.: 466992000221
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Chong-Sheng YUAN

Application No.: 10/043,787

Confirmation No.: 9117

Filed: January 10, 2002

Art Unit: 1652

For: METHODS AND COMPOSITIONS FOR
ASSAYING HOMOCYSTEINE

Examiner: I. Chowdhury

DECLARATION OF CHONG-SHENG YUAN

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Chong-Sheng Yuan, declare as follows:

1. I am the inventor of the subject matter specifically claimed in the above-referenced patent application U.S. Ser. No. 10/043,787, and I am familiar with the contents thereof.

2. Enclosed herewith are the following exhibits:

Exhibit A. GenBank sequence listing and revision history for L32836;

Exhibit B. GenBank sequence listing and revision history for M15185;

Exhibit C. GenBank sequence listing and revision history for M61831; and

Exhibit D. GenBank sequence listing and revision history for M61832.

3. Based on the information from www.ncbi.nlm.nih.gov, the GenBank entry for L32836 was last modified on July 25, 1995 (*See* Exhibit A); the GenBank entry for M15185 was last modified on October 4, 1994 (*See* Exhibit B); the GenBank entry for M61831 was last modified

on November 1, 1994 (*See Exhibit C*); and the GenBank entry for M61832 was last modified on November 1, 1994 (*See Exhibit D*). The sequences recited in GenBank entries downloaded at the time as indicated in the references submitted herein as Exhibits A-D are the same as the sequences recited in GenBank entries at the priority date (July 6, 1999) of the present application. Thus, the amendatory material of the Amendment submitted herewith consists of the same material incorporated by reference in the present application. No new matter has been added.

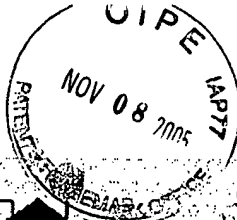
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

11/07/05

Date

Chongsheng Yuan

Chong-Sheng Yuan



Nucleotide

My NCBI
[Sign In]
[Register]

PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM Books

Search for

Display Show

Range: from to ☐ Reverse complemented strand Features: ☐ SNP ☐ CDD ☒

☐ 1: [L32836](#). Reports *Mus musculus* (clo...[gi:904131])

[Links](#)

LOCUS MUSSAHH 2057 bp mRNA linear ROD 24-JUL-1995
 DEFINITION *Mus musculus* (clone C7/B9) S-adenosyl homocysteine hydrolase (ahcy) mRNA, complete cds.
 ACCESSION L32836
 VERSION L32836.1 GI:904131
 KEYWORDS S-adenosyl-L-homocysteine hydrolase; adenosylhomocysteinase; copper-binding protein; homocysteine hydrolysis.
 SOURCE *Mus musculus* (house mouse)
 ORGANISM *Mus musculus*
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi; Muroidea; Muridae; Murinae; Mus.
 REFERENCE 1 (bases 1 to 2057)
 AUTHORS Petrovic,N., Zhou,X.-B., Bethin,K.E., Cimato,T. and Ettinger,M.J.
 TITLE Cloning a cDNA for copper binding protein and its identification as S-Adenosyl Homocysteine Hydrolase
 JOURNAL Proc. Natl. Acad. Sci. U.S.A. (1994) In press
 COMMENT On Jul 25, 1995 this sequence version replaced gi:825467.
 Original source text: *Mus musculus* (strain BALB/c, sub_species domesticus) (clone library: ML1035b phage library (Clontech)) male adult liver cDNA to mRNA.
 FEATURES
 source Location/Qualifiers
 1..2057
 /organism="Mus musculus"
 /mol_type="mRNA"
 /strain="BALB/c"
 /sub_species="domesticus"
 /db_xref="taxon:10090"
 /sex="male"
 /tissue_type="liver"
 /clone_lib="ML1035b phage library (Clontech)"
 /dev_stage="adult"
 /note="(vector EMBL3)"
 gene 1..2057
 /gene="ahcy"
 mRNA <1..>2057
 /gene="ahcy"
 5'UTR <1..5
 /gene="ahcy"
 CDS 6..1304
 /gene="ahcy"
 /EC_number="3.3.1.1"
 /function="copper binding; hydrolysis of homocysteine"
 /experiment="experimental evidence, no additional details recorded"
 /note="copper binding protein"
 /codon_start=1
 /product="S-adenosyl-L-homocysteine hydrolase"

/protein_id="AAA70378.1"
/db_xref="GI:904132"
/translation="MSDKLPYKVADIGLAAWGRKALDIAENEMPGLMRMREMYSASKP
LKGARIAGCLHMTVETAVLIETLVALGAEVRWSSCNIFSTQDHAAAAIAKAGIPVFAW
KGETDEEYLWCIEQTLHFKDGPLNMILDDGGDLTNLIHTKYPQLLSGIRGISEETTTG
VHNLYKMMSNGILNVPAINVND SVTKSKFDNLYGCRESLIDGIKRATDVMIAQKVAVV
AGYGDVGKGCAQALRGFGARVITEIDPINALQAAMEGYEVTMTDEACKEGNIFVTTT
GCVDIILGRHFEQMKDDAIVCNIGHFDVEIDVKWLNENAVEKVNIPQVDRYWLKNGR
RIILLAEGRLVNLGCAMGHPSFVMSNSFTNQVMAQIELWTHPDKYPVGVHFLPKKLDE
AVAEHLGKLVNKLTKLTEKQAQYLGMPI NGPFKPDHYRY"
1305..2057
/gene="ahcy"
/note="putative"
polyA signal 1999..2004
/gene="ahcy"
polyA signal 2034..2039
/gene="ahcy"

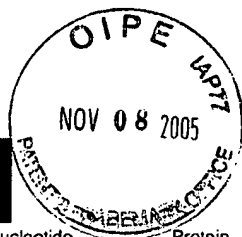
ORIGIN

```
1 ccagcatgct tgataaactg ccctacaaag tcgcggacat cggactggcc gcctggggag
61 ggaaggctct ggatatagct gagaatgaga tgccaggatt gatgcgcatt cgggagatgt
121 actcagcctc caagccactg aagggtgctc gcattgctgg ctgcctgcac atgaccgtgg
181 agactgctgt tctcattgag actctcgtgg ccctgggtgc tgagggtgcg tggtccagct
241 gcaacatctt ctctactcag gaccatgcag cggctgccat tgccaaggct ggcattccag
301 tgtttgcttg gaagggcgag acagatgagg agtacctgtg gtgcattgag cagacgtgc
361 acttcaagga cggaccctc aacatgattc tggatgatgg tggtagacct actaacctca
421 tccacaccaa ataccacag cttctgtcag gcatccgagg tatctctgag gagaccacga
481 ctgggggtcca caacctctac aagatgatgt ccaatgggat actgaacgtg cctgccatca
541 atgtcaacga ttctgtcacc aagagcaagt ttgacaacct ctatggctgc cgggagtcct
601 tcatagatgg catcaaacgg gccacagatg tgatgattgc gggcaagggt ggggtggtgg
661 caggctatgg tgatgtggc aagggtctg cccaggccct gaggggtttt ggggcccgag
721 tcatcatcac cgagatcgac cccatcaatg cactgcaagc tgccatggag ggctatgagg
781 taaccactat ggacgaagcc tgtaaggagg gcaacatctt tgtcaccacc acaggctgtg
841 tggatatcat ccttggccgg cactttgagc agatgaagga tgacgccatt gtctgtaaca
901 ttggacactt cgatgtggag attgatgtga agtggctcaa tgagaacgcg gtggagaaag
961 tgaacatcaa gccccagggt gaccgctact ggctaaagaa tgggcgcgcg atcatcttgc
1021 tggctgaagg ccgtctgggt aacctgggtt gtgccatggg acacccagc ttcgtgatga
1081 gcaactcctt cacaaccag gtgatggcac agattgagct gtggaccac ccagataaat
1141 accctgttgg ggttacttc ctgcctaaga agctggatga ggcggtggct gaagcccacc
1201 tgggcaagct gaatgtgaag ctgaccaagc tgactgagaa gcaagcccag tacctgggca
1261 tgcccatcaa cggcccctt aagcctgac actaccgcta ctgagagctg gggctgtcct
1321 tcaccttcca gctgccatcc aagttccggg cccacctctc gtccccaaga gccaatgtca
1381 ccaactttgt ggtagtttg cctgtgttct gatccgtccc ccgcccccca tctcactgt
1441 ggctggtcac tccgtctttg gcctctgtg caccctcat actgttccat atgtggcatc
1501 gagaacagag agaggtaacct ggtaggcatc cacaggggac atgatctcag aagtcttggg
1561 agtccctgag ctggatgttg ctagtgatgg tcacaagcca tgcaccttat cattgatacc
1621 ctcaacttgg cttagatct gtgtgacctg tttgcagatc cattggttcc tcagtccagg
1681 acccaagaac gagctccacc aaagagcagg aacctctgga gtttgaagg ccccgagagc
1741 tgggcctttt tactgttggc cagtctctta aacctcatga tactgagttg gtactttttt
1801 tggtccttat ttcacaaggg ttcaggatag attaaccaag aaaggacaag tgacagactg
1861 aaaggggctg gaaaacaaga ggaaaggcct gtcaactgtat agttgatgg tctgtcaca
1921 agcccaggtc acaaacagat taatttgttt tataatgttt atatgctatt tagaatgtta
1981 acaaaggaag gtggataaaa tacagtttct actgcctaaa gaattttggc tctattaaaa
2041 tgtaagtgtg tggtctgg
```

//

Disclaimer | Write to the Help Desk
NCBI | NLM | NIH

Oct 4 2005 13:52:42



Sequence Revision History

PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM

Find (Accessions, GI numbers or Fasta style SeqIds) L32836

About Entrez

Show difference between I and II as GenBank/GenPept

Entrez

Revision history for L32836

Search for Genes

LocusLink provides curated information for human, fruit fly, mouse, rat, and zebrafish

Help|FAQ

Batch Entrez: Upload a file of GI or accession numbers to retrieve protein or nucleotide sequences

Check sequence revision history

How to create WWW links to Entrez

LinkOut

My NCBI (Cubby)

Related resources

BLAST

Reference sequence project

LocusLink

Clusters of orthologous groups

Protein reviews on the web

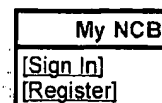
GI	Version	Update Date	Status	I	II
904131	1	Jul 25 1995 12:37 AM	Live		
825467	0	May 23 1995 2:02 PM	Dead		
529443	0	Oct 4 1994 3:45 AM	Dead		
529443	0	Aug 13 1994 12:21 AM	Dead		

Accession L32836 was first seen at NCBI on Aug 13 1994 12:21 AM

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)



Entrez Nucleotide



PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM Books

Search for

Limits

Preview/Index

History

Clipboard

Details

Display Show Range: from to ☐ Reverse complemented strand Features: ☐ SNP ☐ CDD ☒☐ 1: M15185. Reports Rat S-adenosyl-L-...[gi:202803][Links](#)

LOCUS RATAHHA 2029 bp mRNA linear ROD 27-APR-1993
DEFINITION Rat S-adenosyl-L-homocysteine hydrolase mRNA, complete cds.
ACCESSION M15185
VERSION M15185.1 GI:202803
KEYWORDS adenosylhomocysteinase; hydrolase.
SOURCE Rattus sp.
ORGANISM Rattus sp.

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia;
Sciurognathi; Muroidea; Muridae; Murinae; Rattus.

REFERENCE 1 (bases 1 to 2029)

AUTHORS Aksamit,R.R.

JOURNAL Unpublished (1987)

REFERENCE 2 (bases 1 to 2029)

AUTHORS Ogawa,H., Gomi,T., Mueckler,M.M., Fujioka,M., Backlund,P.S. Jr.,
Aksamit,R.R., Unson,C.G. and Cantoni,G.L.TITLE Amino acid sequence of S-adenosyl-L-homocysteine hydrolase from rat
liver as derived from the cDNA sequence

JOURNAL Proc. Natl. Acad. Sci. U.S.A. 84 (3), 719-723 (1987)

PUBMED 3027698

COMMENT Original source text: Rat liver, cDNA to mRNA.

Draft entry and computer-readable sequence for [2],[1] kindly
provided by R.R.Aksamit 25-JUL-1988.

FEATURES Location/Qualifiers

source 1..2029

/organism="Rattus sp."

/mol_type="mRNA"

/db_xref="taxon:10118"

25..1323

CDS

/note="S-adenosyl-L-homocysteine hydrolase (EC 3.3.1.1)"

/codon_start=1

/protein_id="AAA40705.1"

/db_xref="GI:202804"

/translation="MADKLPYKVADIGLAAWGRKALDIAENEMPGLMRMREMYSASKP
LKGARIAGCLHMTVETAVLIETLVALGAEVRWSSCNIFSTQDHAAAAIAKAGIPVFAW
KGETDEEYLWCIEQTLHFQDGPLNMLDDGGDLTNLIHTKHPQLLSGIRGISEETTTG
VHNLKMMANGILKVPAINVNDVTSKSKFDNLGCRSLIDGIKRATDVMIAQKVVAVV
AGYGDVGKGCQAALRGFGARVIITEIDPINALQAAMEGYEVTMTDEACEKNIFVTTT
GCVDIILGRHFEQMKDDAIVCNIGHFDVEIDVKWLNENAVEKVNIPQVDRYLLKNGH
RIILLAEGRLVNLGCAMGHPFSFVMSNSFTNQVMAQIELWTHDPKYPVGVHFLPKKLDE
AVAEAHLGKLNVLTKLTEKQAQYLGMPINGPFPKPDHYR"

ORIGIN 97 bp upstream of AluI site.

1 ctactctag cggacttcgc cagcatggct gataaactgc cctacaaagt cgcggacatt
61 ggactggctg cctggggacg gaaggccctg gacatagctg agaacgagat gccaggttg
121 atgcgcgcatgc gggagatgta ctcagcctcc aagccactga agggcgctcg cattgctggc
181 tgcctgcaca tgactgtgga gactgctgtc ctcattgaga ctctcggtgc cctgggtgct
241 gaggtgcggt ggtccagctg caacatcttc tccactcagg accatgcagc ggctgccatt
301 gccaaaggctg gcattccagt gtttgctggg aaggagaga cggatgaaga gtacctgtgg

```
361 tgcattgagc agacgttgca cttcaaggac ggacccctca acatgattct ggatgatggc
421 ggtgacctta ctaacctcat ccacaccaa caccacacagc ttctgtcagg catccgaggt
481 atctctgagg agaccacgac tggcggtccac aacctctaca agatgatggc caatgggata
541 ctgaagggtgc ctgccatcaa cgtcaacgat tctgtcacca agagcaagtt tgacaacctc
601 tatggctgcc gggagtccct catagatggc atcaaacggg caacagatgt gatgattgcg
661 ggcaagggtg cagtggtagc aggctatggg gatgtgggca agggttgtgc ccaggccctg
721 cggggtttcg gggcccagat catcatcacc gagattgacc ccatcaatgc actgcaagct
781 gccatggagg gctacgaggt aaccaccatg gacgaggcct gtaaggagg caacatcttt
841 gtgaccacca cgggctgtgt tgatatcatc cttggtcggc actttgaaca gatgaaggat
901 gatgccattg tctgtaacat tggacacttc gacgtggaga ttgatgtgaa gtggctcaat
961 gagaacgctg tggagaaggt gaacatcaag cccaggtgg accgctactt gctaaagaat
1021 gggcaccgca tcatcttgct ggctgagggc cgtctggtca acctgggttg tgccatgggc
1081 caccaccagct tcgtgatgag caactccttc acaaaccagg tgatggcaca gattgagctg
1141 tggaccacc cagacaaata ccccggtggg gttcacttcc tgcctaagaa gctggatgag
1201 gcagtggctg aagcccacct gggcaagctg aacgtcaagc tgaccaagct gactgagaag
1261 caggctcagt acctgggcat gccattaac ggcccttca agcctgatca ctaccgctac
1321 tgagagctgg gactgccctt caccttccag ctgccatcct tgttccaggc cctacctctc
1381 gttcccaaga gcaaattgtc ccaactttgc agttacttct ccggtgttct gctccctccc
1441 ccggccctca tccacactgt gactggtctt tctgtctttg gcttctgctg taccctcat
1501 actgttccct atgtggcata gagaacagag aggtacctgg gaggcacca caggggatct
1561 gagctcttgg aaggctgag gctggatgtt gctggtggtc acaagcccat gcaccttact
1621 atccaaactc tcgcttggtc tttagatccg tgtgcttggg ttacagacca atggtttctc
1681 ggcccaggac ccaagaagga gctctaccat gggggaagga accactggag tttgaaggct
1741 cctgagagct tggccttttt actgttgggc tgtctcttaa acctcctaat actgagttgg
1801 ctacttttgg tccctatttc acaagggtta ggacagatta accaagaaag gacaagtgac
1861 agagactgaa aggggctgga aaaacaaata gggaaaggcc tgtcacctac ggtataattg
1921 atggttccta tcacaagcct ggatcacaaa cagattaatt tgttctatgt ttatatactg
1981 tttagaatgt taacacagga aggtggataa aatacagttt ctagtgcct
```

//

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)

Oct 4 2005 13:52:42



Sequence Revision History

PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM

Find (Accessions, GI numbers or Fasta style SeqIds)

About Entrez

Show difference between I and II as

Entrez

Revision history for M15185

Search for Genes

LocusLink provides curated information for human, fruit fly, mouse, rat, and zebrafish

GI	Version	Update Date	Status	I	II
202803	1	Oct 4 1994 4:30 AM	Live		
202803	1	Apr 27 1993 8:13 PM	Dead		

Accession M15185 was first seen at NCBI on Apr 27 1993 8:13 PM

Help|FAQ

Batch Entrez: Upload a file of GI or accession numbers to retrieve protein or nucleotide sequences

Check sequence revision history

How to create WWW links to Entrez

LinkOut

My NCBI (Cubby)

Related resources

BLAST

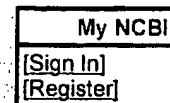
Reference sequence project

LocusLink

Clusters of orthologous groups

Protein reviews on the web

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)



PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM Books
 Search for

Limits Preview/Index History Clipboard Details

Display Show Send to

Range: from to ☐ Reverse complemented strand Features: ☐ SNP ☐ CDD ☒

☐ 1: [M61831](#). Reports Human S-adenosylh...[gi:178276]

[Links](#)

LOCUS HUMAHCY 2211 bp mRNA linear PRI 30-OCT-1994
 DEFINITION Human S-adenosylhomocysteine hydrolase (AHCY) mRNA, complete cds.
 ACCESSION M61831
 VERSION M61831.1 GI:178276
 KEYWORDS S-adenosylhomocysteine hydrolase.
 SOURCE Homo sapiens (human)
 ORGANISM Homo sapiens
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini;
 Hominidae; Homo.
 REFERENCE 1 (bases 1 to 2211)
 AUTHORS Coulter-Karis,D.E. and Hershfield,M.S.
 TITLE Sequence of full length cDNA for human S-adenosylhomocysteine
 hydrolase
 JOURNAL Ann. Hum. Genet. 53 (Pt 2), 169-175 (1989)
 PUBMED [2596825](#)
 COMMENT Original source text: Homo sapiens RNA.
 From EMBL entry HSAHCY; dated 29-MAR-1991.
 FEATURES
 source Location/Qualifiers
 1..2211
 /organism="Homo sapiens"
 /mol_type="mRNA"
 /db_xref="taxon:9606"
 /map="20cen-q13.1"
 gene join(48..901,1003..1447)
 /gene="AHCY"
 CDS join(48..901,1003..1447)
 /gene="AHCY"
 /EC_number="3.3.1.1"
 /codon_start=1
 /product="S-adenosylhomocysteine hydrolase"
 /protein_id="AAA51681.1"
 /db_xref="GI:178277"
 /db_xref="GDB:G00-118-983"
 /translation="MSDKLPYKVADIGLAAWGRKALDIAENEMPGLMRMRERYASAKP
 LKGARIAGCLHMTVETAVLIETLVTLGAEVQWSSCNIFSTQNHAAAAIAKAGIPVYAW
 KGETDEEYLWCIEQTLTYFKDGPLNMILDGDDLTLNLIHTKYPQLLPGIRGISEETTTG
 VHNLYKMMANGILKVPAINVNDSTKSKFDNLYGCRESLIDGIKRATDVMIAGKVAVV
 AGYGDVVGKGAQALRGFGARVITEIDPINALQAAMEGYEVTMTMDEACQEGNIFVTTT
 GCIDIILGRHFEQMKDDAIVCNIGHFDVEIDVKWLNENAVEKVNPKQVDVRYRLKNGR
 RIILLAEGRLVNLGCAMGHPSFVMSNSFTNQVMAQIELWTHPKYPVGVHFLPKKLDE
 AVAEHLGKLVNKLTKLTEKQAQYLGMSCDGPFKPDHYRY"
 exon <48..901
 /gene="AHCY"
 /product="S-adenosylhomocysteine hydrolase"
 /note="G00-118-983"
 exon 1003..>1447
 /gene="AHCY"

/product="S-adenosylhomocysteine hydrolase"
/note="G00-118-983"

ORIGIN

```
1  ctgaggccca gcccccttcg cccgtttcca tcacgagtgc cgccagcatg tctgacaaac
61  tgcctacaaa agtcgccgac atcggcctgg ctgcctgggg acgcaaggcc ctggacattg
121 ctgagaacga gatgccgggc ctgatgcgta tgcgggagcg gtactcgccc tccaagccac
181 tgaaggcgcg ccgcatcgct ggctgcctgc acatgaccgt ggagacggcc gtcctcattg
241 agaccctcgt caccctgggt gctgaggtgc agtgggccag ctgcaacatc ttctccaccc
301 agaaccatgc ggcggctgcc attgccaaagg ctggcattcc ggtgtatgcc tgggaaggcg
361 aaacggacga ggagtacctg tgggtgattg agcagaccct gtacttcaag gacgggcccc
421 tcaacatgat tctggacgac gggggcgacc tcaccaacct catccacacc aagtaccgcg
481 agcttctgcc aggcattccga ggcatctctg aggagaccac gactggggtc cacaacctct
541 acaagatgat ggccaatggg atcctcaagg tgcctgccat caatgtcaat gactcogtca
601 ccaagagcaa gtttgacaac ctctatggct gccgggagtc cctcatagat ggcataaagc
661 gggccacaga tgtgatgatt gccggcaagg tagcgggtgt agcaggctat ggtgatgtgg
721 gcaagggtcg tggccaggcc ctgccccgtt tcggagcccg cgtcatcacc accgagattg
781 accccatcaa cgcactgcag gctgccatgg agggctatga ggtgaccacc atggatgagg
841 cctgtcagga gggcaacatc tttgtcacca ccacaggctg tattgacatc atccttggcc
901 ggtaggtgcc agatgggggg tcccggggag tgagggagga gggcagagtt gggacagctt
961 tctgtccctg acaatctccc acggtcttgg gctgcctgac aggcactttg agcagatgaa
1021 ggtgatgccc attgtgtgta acattggaca ctttgacgtg gagatcgatg tcaagtggct
1081 caacgagaac gccgtggaga aggtgaacat caagccgcag gtggaccggt atcggttgaa
1141 gaatggcgcg cgcattcatc tgctggccga gggtcggctg gtcaacctgg gttgtgccat
1201 gggccacccc agcttcgtga tgagtaactc cttaccaaac cagggtgatg cgcagatcga
1261 gctgtggacc catccagaca agtaccctgt tggggttcat ttctgcccga agaagctgga
1321 tgaggcagtg gctgaagccc acctgggcaa gctgaatgtg aagttgacca agctaactga
1381 gaagcaagcc cagtacctgg gcatgtcctg tgatggcccc ttcaagcccg atcactaccg
1441 ctactgagag ccaggtctgc gtttcaccct ccagctgctg tccttggcca ggccccacct
1501 ctccctcccta agagctaata gcaccaactt tgtgattggg ttgtcagtgt ccccatcga
1561 ctctctgggg ctgactactt agtttttggc ctctgctgca gccgtcatac tgttccaaat
1621 gtggcagcgg gaacagagta cctcttcaa gcccgggtca tgatggaggt cccagccaca
1681 gggaaacctg agctcagtggt tcttggaaac gctcactaag tcagtccttc cttagcctgg
1741 aagtcagtag tggagtcaaa aagcccatgt gttttgccat ctaggccttc acctggtctg
1801 tggacttata cctgtgtgct tggtttacag gtccagtggg tcttcagccc atgacagatg
1861 agaaggggct atattgaagg gcaaagagga actgttggtt gaattttcct gagagcctgg
1921 cttagtgctg ggccttctct taaacctcat tacaatgagg ttagtacttt tagtccctgt
1981 tttacagggg ttagaataga ctgttaaggg gcaactgaga aagaacagag aagtgcagag
2041 taggggttga gaggggccag aaaaacatga atgcaggcag atttcgtgaa atctgccacc
2101 actttataac cagatgggtc ctttcacaac cctgggtcaa aaagagaata atttggccta
2161 taatgttaaa agaaagcagg aaggtgggta aataaaaatc ttggtgcctg g
```

//

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)

Oct 4 2005 13:52:42



Sequence Revision History

PubMed

Nucleotide

Protein

Genome

Structure

PMC

Taxonomy

OMIM

Find (Accessions, GI numbers or Fasta style SeqIds) M61831

About Entrez

Show

difference between I and II as

GenBank/GenPept

Entrez

Revision history for M61831

Search for Genes

LocusLink provides curated information for human, fruit fly, mouse, rat, and zebrafish

Help|FAQ

Batch Entrez: Upload a file of GI or accession numbers to retrieve protein or nucleotide sequences

Check sequence revision history

How to create WWW links to Entrez

LinkOut

My NCBI (Cubby)

Related resources

BLAST

Reference sequence project

LocusLink

Clusters of orthologous groups

Protein reviews on the web

GI	Version	Update Date	Status	I	II
178276	1	Nov 1 1994 12:33 AM	Live		
178276	1	Oct 28 1994 12:49 AM	Dead		
178276	1	Oct 3 1994 1:52 PM	Dead		
178276	1	Apr 27 1993 8:43 AM	Dead		

Accession M61831 was first seen at NCBI on Apr 27 1993 8:43 AM

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)



PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM Books
 Search for

Limits Preview/Index History Clipboard Details

Display Show

Range: from to ☐ Reverse complemented strand Features: ☐ SNP ☐ CDD ☒

☐ 1: [M61832](#). Reports Human S-adenosylh...[gi:178278]

[Links](#)

LOCUS HUMAHCY2 2084 bp mRNA linear PRI 30-OCT-1994
 DEFINITION Human S-adenosylhomocysteine hydrolase (AHCY) mRNA, complete cds.
 ACCESSION M61832
 VERSION M61832.1 GI:178278
 KEYWORDS S-adenosylhomocysteine hydrolase.
 SOURCE Homo sapiens (human)
 ORGANISM Homo sapiens
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini;
 Hominidae; Homo.
 REFERENCE 1 (bases 1 to 2084)
 AUTHORS Coulter-Karis, D.E. and Hershfield, M.S.
 TITLE Sequence of full length cDNA for human S-adenosylhomocysteine
 hydrolase
 JOURNAL Ann. Hum. Genet. 53 (Pt 2), 169-175 (1989)
 PUBMED 2596825
 COMMENT Original source text: Homo sapiens RNA.
 From EMBL entry HSAHCY2; dated 29-MAR-1991.
 FEATURES
 source Location/Qualifiers
 1..2084
 /organism="Homo sapiens"
 /mol_type="mRNA"
 /db_xref="taxon:9606"
 /map="20cen-q13.1"
 gene 1..2084
 /gene="AHCY"
 CDS 44..1342
 /gene="AHCY"
 /EC_number="3.3.1.1"
 /codon_start=1
 /product="S-adenosylhomocysteine hydrolase"
 /protein_id="AAA51682.1"
 /db_xref="GI:178279"
 /db_xref="GDB:G00-118-983"
 /translation="MSDKLPYKVADIGLAAWGRKALDIAENEMPGLMRMRERYASAKP
 LKGARIAGCLHMTVETAVLIETLVTLGAEVQWSSCNIFSTQDHAAAAIAKAGIPVYAW
 KGETDEEYLWCIEQTLTYFKDGPLNMLDDGGDLTNLIHTKYPQLLPGIRGISEETTGT
 VHNLYKMMANGILKVPAINVNSVTKSKFDNLYGCRESLIDGIKRAVDVMIAGKVAVV
 AGYGDVVGKGAQALRGFGARVITEIDPINALQAAMEGYEVTTMDEACQEGNIFVTTT
 GCIDIILGRHFEQMKDDAIVCNIGHFDVEIDVKWLNENAVEKVNIPQVDVRYRLKNGR
 RIILLAEGRLVNLGCAMGHPFSVMSNSFTNQVMAQIELWTHPDKYPVGVHFLPKKLDE
 AVAEHLGKLNVLTKLTEKQAQYLGMSCDGPFKPDHYRY"

ORIGIN

```

1  ggcccagccc ccttcgccc tttccatcac gaggcgccc agcatgtctg acaaactgcc
61  ctacaaagtc gccgacatcg gctggctgc ctggggacgc aaggccctgg acattgctga
121  gaacgagatg ccgggcctga tgcgtatgcg ggagcggtag tcggcctcca agccactgaa
181  gggcgccgcg atcgctggct gctgcacat gaccgtggag acggcgtcc tcattgagac
241  cctcgtcacc ctgggtgctg aggtgcagtg gtccagctgc aacatcttct ccaccaggga
```

```
301 ccatgcgggc gctgccattg ccaaggctgg cattccggtg tatgcctgga agggcgaaac
361 ggacgaggag tacctgtggt gcattgagca gaccctgtac ttcaaggacg ggccctcaa
421 catgattctg gacgacggg gcgacctcac caacctcatc cacaccaagt acccgagct
481 tctgccaggc atccgaggca tctctgagga gaccacgact ggggtccaca acctctaaa
541 gatgatggcc aatgggatcc tcaagggtgcc tgccatcaat gtcaatgact ccgtcaccaa
601 gagcaagttt gacaacctct atggctgccg ggagtccttc atagatggca tcaagcgggc
661 cacagatgtg atgattgccg gcaaggtagc ggtggtagca ggctatggtg atgtgggcaa
721 gggctgtgcc caggccctgc ggggtttcgg agcccgcgtc atcatcaccg agattgaccc
781 catcaacgca ctgcaggctg ccatggaggg ctatgagggt accaccatgg atgaggcctg
841 tcaggagggc aacatctttg tcaccaccac aggtgtatt gacatcatcc ttggccggca
901 ctttgagcag atgaaggatg atgccattgt gtgtaacatt ggacactttg acgtggagat
961 cgatgtcaag tggtcaacg agaacgccgt ggagaagggt aacatcaagc cgcagggtga
1021 ccggtatcgg ttgaagaatg ggcgcgcgat catcctgctg gccgagggtc ggctggtcaa
1081 cctgggttgt gccatgggcc accccagctt cgtgatgagt aactccttca ccaaccaggt
1141 gatggcgagc atcgagctgt ggacctatcc agacaagtac cccgttgggg ttcatttctt
1201 gcccagaagc ctggatgagg cagtggctga agcccacctg ggcaagctga atgtgaagtt
1261 gaccaagcta actgagaagc aagcccagta cctgggcgat tctgtgatg gcccttcaa
1321 gccgatcac taccgtact gagagccagg tctgcgtttc accctccagc tctgtcctt
1381 gccaggccc cactctcct ccctaagagc taatggcacc aactttgtga ctggtttgtc
1441 agtgtcccc atcgactctc tggggctgat cacttagttt ttggcctctg ctgcagccgt
1501 catactgttc caaatgtggc agcgggaaca gagtaccctc ttcaagcccc ggtcatgatg
1561 gaggtcccag ccacaggga ccatgagctc agtggctctg gaacagctca ctaagtcatg
1621 ccttccttag cctggaagcc agtagtgagg tcacaaagcc catgtgtttt gccatctagg
1681 ccttcacctg gtctgtggac ttatacctgt gtgcttggtt tacaggtcca gtggttcttc
1741 agcccatgac agatgagaag gggctatatt gaaggcaca gaggaactgt tgtttgaatt
1801 ttctgagag cctggcttag tgctgggcct tctcttaaac ctcatataa tgaggtagt
1861 acttttagtc cctgttttac aggggttaga atagactgtt aaggggcaac tgagaaagaa
1921 cagagaagtg acagctaggg gttgagagg gccagaaaa catgaatgca ggcagatttc
1981 gtgaaatctg ccaccacttt ataaccagat ggttcctttc acaaccctg gtcaaaaaga
2041 gaataatttg gcctataatg ttaaaagaaa gcagggaaggt gggg
```

//

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)

Oct 4 2005 13:52:42



Sequence Revision History

[PubMed](#)
[Nucleotide](#)
[Protein](#)
[Genome](#)
[Structure](#)
[PMC](#)
[Taxonomy](#)
[OMIM](#)

Find (Accessions, GI numbers or Fasta style Seqlds)

[About Entrez](#)

difference between I and II as

[Entrez](#)

Revision history for M61832

Search for Genes

LocusLink provides curated information for human, fruit fly, mouse, rat, and zebrafish

[Help|FAQ](#)

Batch Entrez: Upload a file of GI or accession numbers to retrieve protein or nucleotide sequences

[Check sequence revision history](#)

[How to create WWW links to Entrez](#)

[LinkOut](#)
[My NCBI \(Cubby\)](#)

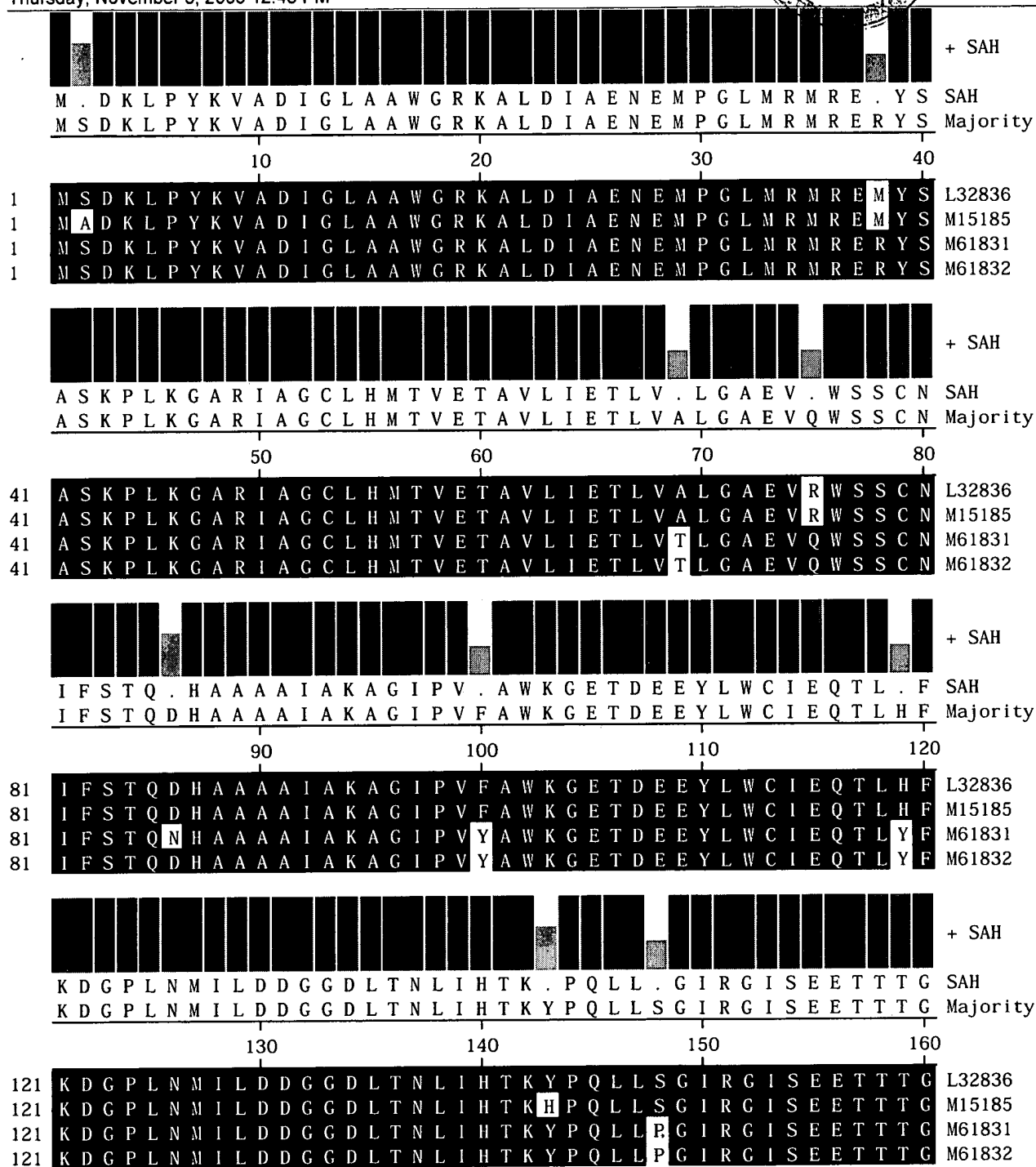
Related resources

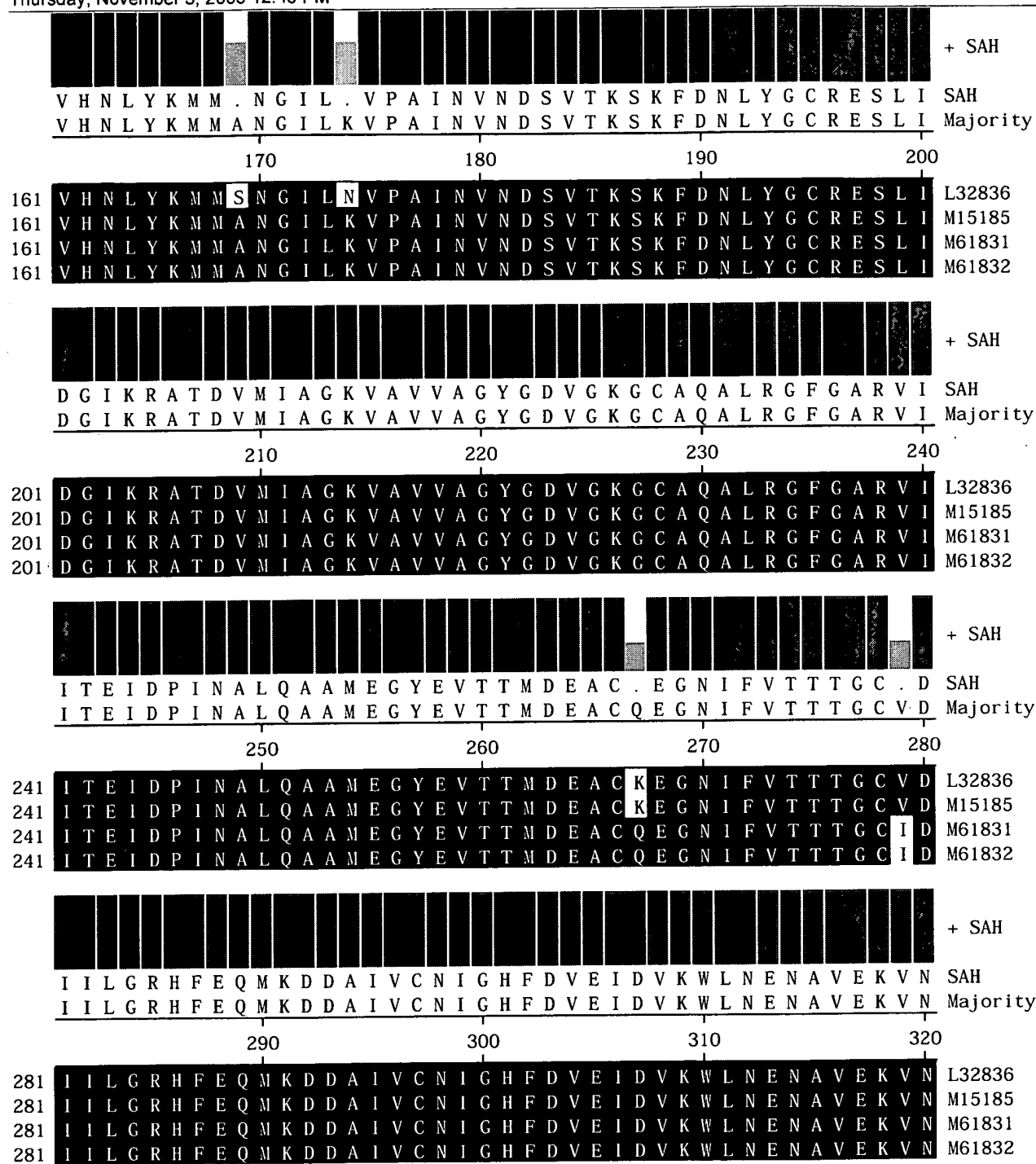
[BLAST](#)
[Reference sequence project](#)
[LocusLink](#)
[Clusters of orthologous groups](#)
[Protein reviews on the web](#)

GI	Version	Update Date	Status	I	II
178278	1	Nov 1 1994 12:33 AM	Live		
178278	1	Oct 28 1994 12:49 AM	Dead		
178278	1	Oct 3 1994 1:52 PM	Dead		
178278	1	Apr 27 1993 8:43 AM	Dead		

Accession M61832 was first seen at NCBI on Apr 27 1993 8:43 AM

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)





																				+ SAH																					
I K P Q V D R Y . L K N G . R I I L L A E G R L V N L G C A M G H P S F V M S N																				SAH																					
I K P Q V D R Y R L K N G R R I I L L A E G R L V N L G C A M G H P S F V M S N																				Majority																					
330					340					350					360																										
321	I	K	P	Q	V	D	R	Y	W	L	K	N	G	R	R	I	I	L	L	A	E	G	R	L	V	N	L	G	C	A	M	G	H	P	S	F	V	M	S	N	L32836
321	I	K	P	Q	V	D	R	Y	L	L	K	N	G	H	R	I	I	L	L	A	E	G	R	L	V	N	L	G	C	A	M	G	H	P	S	F	V	M	S	N	M15185
321	I	K	P	Q	V	D	R	Y	R	L	K	N	G	R	R	I	I	L	L	A	E	G	R	L	V	N	L	G	C	A	M	G	H	P	S	F	V	M	S	N	M61831
321	I	K	P	Q	V	D	R	Y	R	L	K	N	G	R	R	I	I	L	L	A	E	G	R	L	V	N	L	G	C	A	M	G	H	P	S	F	V	M	S	N	M61832
																				+ SAH																					
S F T N Q V M A Q I E L W T H P D K Y P V G V H F L P K K L D E A V A E A H L G																				SAH																					
S F T N Q V M A Q I E L W T H P D K Y P V G V H F L P K K L D E A V A E A H L G																				Majority																					
370					380					390					400																										
361	S	F	T	N	Q	V	M	A	Q	I	E	L	W	T	H	P	D	K	Y	P	V	G	V	H	F	L	P	K	K	L	D	E	A	V	A	E	A	H	L	G	L32836
361	S	F	T	N	Q	V	M	A	Q	I	E	L	W	T	H	P	D	K	Y	P	V	G	V	H	F	L	P	K	K	L	D	E	A	V	A	E	A	H	L	G	M15185
361	S	F	T	N	Q	V	M	A	Q	I	E	L	W	T	H	P	D	K	Y	P	V	G	V	H	F	L	P	K	K	L	D	E	A	V	A	E	A	H	L	G	M61831
361	S	F	T	N	Q	V	M	A	Q	I	E	L	W	T	H	P	D	K	Y	P	V	G	V	H	F	L	P	K	K	L	D	E	A	V	A	E	A	H	L	G	M61832
																				+ SAH																					
K L N V K L T K L T E K Q A Q Y L G M . . . G P F K P D H Y R Y																				SAH																					
K L N V K L T K L T E K Q A Q Y L G M S I D G P F K P D H Y R Y																				Majority																					
410					420					430																															
401	K	L	N	V	K	L	T	K	L	T	E	K	Q	A	Q	Y	L	G	M	P	I	N	G	P	F	K	P	D	H	Y	R	Y								L32836	
401	K	L	N	V	K	L	T	K	L	T	E	K	Q	A	Q	Y	L	G	M	P	I	N	G	P	F	K	P	D	H	Y	R	Y								M15185	
401	K	L	N	V	K	L	T	K	L	T	E	K	Q	A	Q	Y	L	G	M	S	C	D	G	P	F	K	P	D	H	Y	R	Y								M61831	
401	K	L	N	V	K	L	T	K	L	T	E	K	Q	A	Q	Y	L	G	M	S	C	D	G	P	F	K	P	D	H	Y	R	Y								M61832	

Consensus 'SAH': When all match the residue of the Consensus show the residue of the Consensus, otherwise show '.'.

Decoration 'Decoration #1': Shade (with solid black) residues that match the Consensus exactly.